

Appl. No. 10/789894
Reply to Action dated 4/11/08
Page 5

REMARKS

Claims 10-14 have been amended. Claims 10-14 remain pending.

Reconsideration and reexamination of the application, as amended, are requested.

The Examiner objected to claim 14 as being substantially a duplicate of claim 12. The dependency of claim 14 has been changed. The objection should no longer be applicable.

The Examiner rejected claims 10-14 under 35 U.S.C. 112, second paragraph, as being indefinite. The Examiner's comments have been considered and the claims have been appropriately amended. It is submitted that the claims are now definite.

The Examiner rejected claims 10, 12, and 14 under 35 U.S.C. 103(a) as being obvious on consideration of the admitted prior art (apa) of the last two lines of page 1 and page 2 of the specification, in view Bullinger and Fohl.

In the admitted prior art, Applicant discusses the disclosure of Japanese Patent No. 2946995. Applicant identifies the problem which the present invention solves and discusses the deficiencies of the admitted prior art. Applicant's discussion at page 2, lines 5-25, is as follows:

In a case where the motor-assisted pretensioner is combined with the emergency locking retractor, when the collision of the vehicle is avoided after the motor-assisted pretensioner has increased the tension of the webbing to restrain an occupant based on the foreknowing of the collision of the vehicle, it is necessary to loosen the tension of the webbing again to cancel the restraint of the occupant. In this case, the occupant is in a restrained state and hence, the engagement of the ratchet tooth and the ratchet claw with each other is maintained, whereby the emergency locking retractor remains in a locking state and hence, the webbing cannot be drawn out by the motor-assisted pretensioner. To avoid this situation, a sensor for detecting the inclination of the weight of the emergency locking retractor is mounted, and after it detects that the inclination has been eliminated to provide a state in which the locking state of the retractor of the emergency locking retractor can be released, an actuator is required to forcibly release the

Appl. No. 10/789894
Reply to Action dated 4/11/08
Page 6

engagement of the ratchet tooth and the ratchet claw. However, such an arrangement suffers from a problem of an increase in the number of parts, because of the needs for the sensor for detecting the inclination of the weight and the actuator for releasing the engagement of the ratchet tooth and the ratchet claw.

Applicant goes on to make it clear exactly what the object of the present invention is at page 3, lines 2-5, as follows:

Accordingly, it is an object of the present invention to ensure that the drawing-out of the webbing by the motor-assisted pretensioner of the seat belt device can be carried out with a good timing without need for a special sensor and an actuator.

Bullinger discloses use of some type of control unit to detect a hazard and actuate the pretensioner. That is, at column 5, lines 56-63, Bullinger discloses:

In step 101, a safety-critical situation is detected by the hazard computer or by a control unit, for example, by the BAS (Brake Booster) control unit, by the DTR (DisTRonic-cruise controller for maintaining distance between vehicles) control unit or by the ESP (Electronic Stability Program) control unit, and as a result in step 102 the triggering of the belt pretensioner is brought about.

Bullinger recognizes that after a predetermined time or if the cause of the triggering of the belt pretensioner no longer applies or if a normal travel mode is ensured, then it is desirable to release the vehicle occupant from the state of belt pretensioning. With respect to the Bullinger structure, the locking mechanism is relieved of tensile loading so that unlocking can occur by winding the webbing just a bit further. Bullinger further recognizes that after there has been just a bit more winding of the webbing so that when the locking device opens, still further pretensioning is not necessary or desirable and that further pretensioning should be as small as possible. For this purpose, Bullinger identifies a variable which is indicative of the opening of the locking device. The

Appl. No. 10/789894
Reply to Action dated 4/11/08
Page 7

variable can be a switch, an angle-of-rotation sensor, or an electrical operating variable of the electric motor, such as, motor current or voltage. In any case, the just discussed sequence of events of operation help to identify the structural elements of the Bullinger disclosure.

With respect to the apparatus of claims 10 and 13, the distinctive aspect is:

- (1) The electric motor is operated on the basis of the acceleration signal from the "device" including the adaptive cruise control system with respect to the acceleration being reduced to be smaller than a predetermined value; and
- (2) Independently, the condition necessary for the weight to move in an instant from its operative position to its inoperative position which allows the webbing to loosen is that acceleration reduces.

Whereas Bullinger further pretensions the webbing device until an operating variable of the electric motor reaches a predetermined value or a switch provides an indication or a sensor provides an appropriate value at the time of the opening of the locking device, the apparatus of claims 10 and 13 do not require such structure having such a sequence of events. Rather, the weight is physically responsive to the acceleration or lack thereof with respect to moving in an instant from an operative position to an inoperative position. The apparatus of claims 10 and 13 require a "device" separate from the weight such that the device includes an adaptive cruise control system which permits the electronic control unit on receipt of a signal to command the electric motor appropriately. Bullinger, as indicated above, discloses the use of a BAS, a DTR, or an ESP to detect a safety-critical situation, but not with respect to releasing the webbing. Bullinger uses a special sensor or an operating variable of the electrical motor to detect when the locking device has opened so the webbing can loosen. Considering Bullinger in view of Applicant's prior art, that is, the ratchet retractor structure and Bullinger's disclosure of a sensor, switch, or electric motor variable, the references essentially point to the same structure as Applicant's prior art discussion of Japanese Patent No. 2946995. The combination of the references does not point to a device separate from the weight of

Appl. No. 10/789894
Reply to Action dated 4/11/08
Page 8

the ratchet retractor which device includes an adaptive cruise control system which device sends a signal to command the electric motor to operate appropriately. It is recognized by Applicant that the physical conditions, namely, the acceleration of the vehicle, result in the ratchet retractor and the signal from the device separate from the weight of the ratchet retractor to operate very close to the same time. They are not coupled together, or sequenced as with the Bullinger device. Thus, the references do not teach the structure of claims 10 and 13, specifically do not teach a device separate from the weight of the ratchet retractor and adapted to send a signal to the electronic control unit which commands the electric motor appropriately. Fohl adds nothing to the other two references in this regard. As a result, claims 10 and 13 and the claims which depend from them are non obvious over these references.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration and reexamination are requested. Allowance of claims 10-14 at an early date is solicited. Any questions regarding this communication can be directed to the undersigned attorney, Curtis B. Hamre, Reg. No. 29,165 at (612) 455-3802.



Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: August 11, 2008

By: Curtis B. Hamre
Curtis B. Hamre
Reg. No. 29,165
CBH/mas/jc